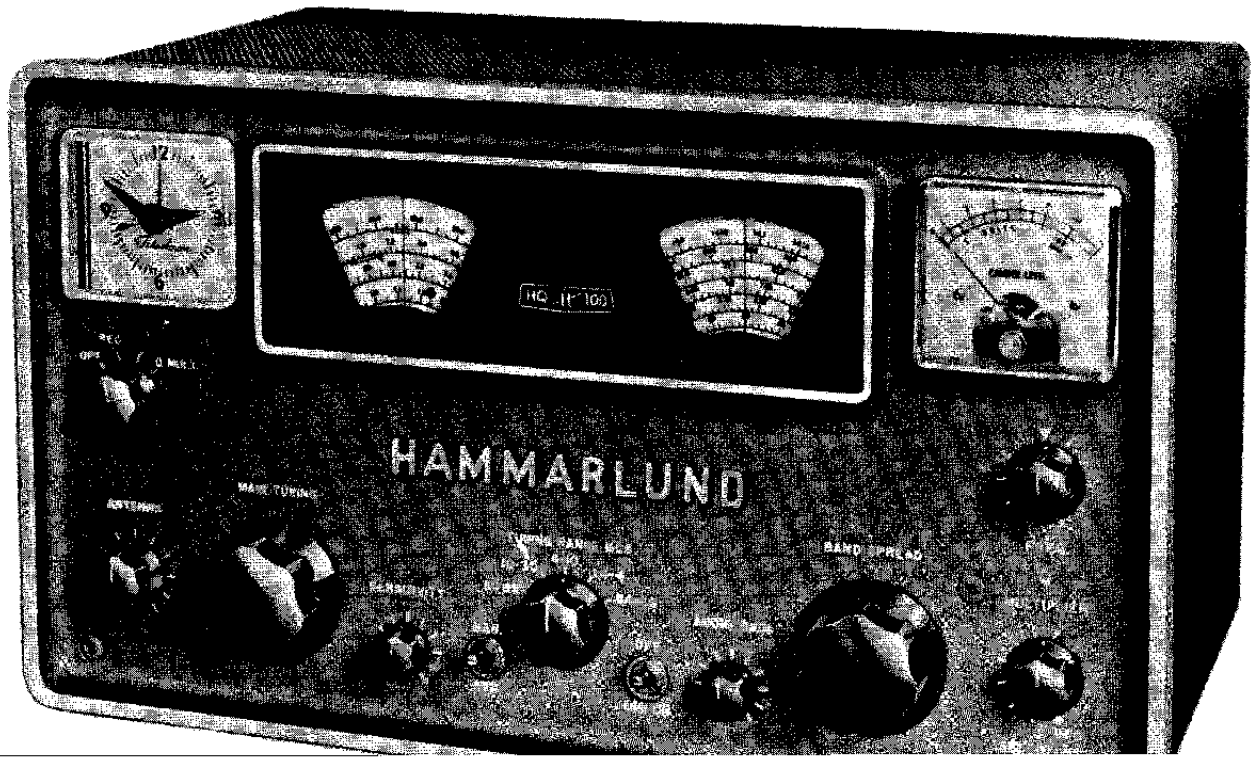
THE
HQ-100, HQ-100C, HQ-100E
COMMUNICATIONS
RECEIVERS

INSTRUCTION AND SERVICE INFORMATION

ESTABLISHED 1910

In order to receive the full unconditional 90-day warranty against defective material and workmanship in this receiver, the warranty card must be filled out and mailed within two weeks of purchase. Please refer to serial number of warranty in correspondence.

THE HAMMARLUND MANUFACTURING CO., INC.
460 West 34th Street : : : : New York 1, N.Y.


HAMMARLUND

INTRODUCTION

The Hammarlund HQ-100 is an all-new communications receiver representing entirely new concepts in electrical and mechanical design. It will provide years of top performance with minimum maintenance. The HQ-100 has a self-contained power supply operating from a 60 cps, 105-125 volt AC source. The Hammarlund HQ-100-C incorporates a telechron automatic electric clock-timer in its design. The export model, HQ-100-E, will operate from a 50-60 cps, 115-230 volt AC source. Because of the power supply operating frequency of the export model, the automatic timer and clock is not incorporated in this model.

The HQ-100 is a superheterodyne receiver with a frequency coverage continuously tunable from 540 KCS to 30 MCS with extremely fine control in separation of crowded signals. A very high signal-to-noise ratio plus the famous Hammarlund noise limiter circuit, permits full use of the receiver's excellent sensitivity on the weakest signals. A Q-Multiplier is provided for varying the selectivity of the receiver.

Electrical band spread tuning is provided with direct calibration every 10 KCS on 80, 40, and 20 meter bands; every 20 KCS on the 15 meter band and every 50 KCS on the 10 meter band. In addition, an arbitrary band spread logging scale is provided for use throughout the tuning range of the receiver.

A new audio output circuit feature is the Auto-Response which automatically narrows and widens the frequency range of the audio output, depending upon the gain required. This feature permits the receiver to be used as a high-fidelity receiver on stronger signals, while providing the sharp cutoff required in receiving communication signals. A second advantage of the Hammarlund Auto-Response is the rapid damping of the audio power in the speaker voice coil which greatly minimizes undesirable speaker "hangover." The receiver may be used with either speaker or headphones. Fast acting AVC maintains a constant audio level. Adequate filtering practically eliminates AC power ripple.

The HQ-100 is equipped with a stable beat frequency oscillator which provides the operator with a continuous range of audio tones when receiving telegraph, code signals, or excellent single-side band reception.

An "S" meter is provided to obtain accurate readings on received phone signals and to assure "on-the-nose" tuning. A send-receive switch is provided to silence the receiver while transmitting.

Large, comfortable controls in logical groupings are provided for greatest operating ease. The new futuristic front panel is clearly marked to permit full attention to the operating at hand.

The HQ-100 was designed with you in mind. You'll have many hours of pleasure and use in operating this truly fine communications instrument.

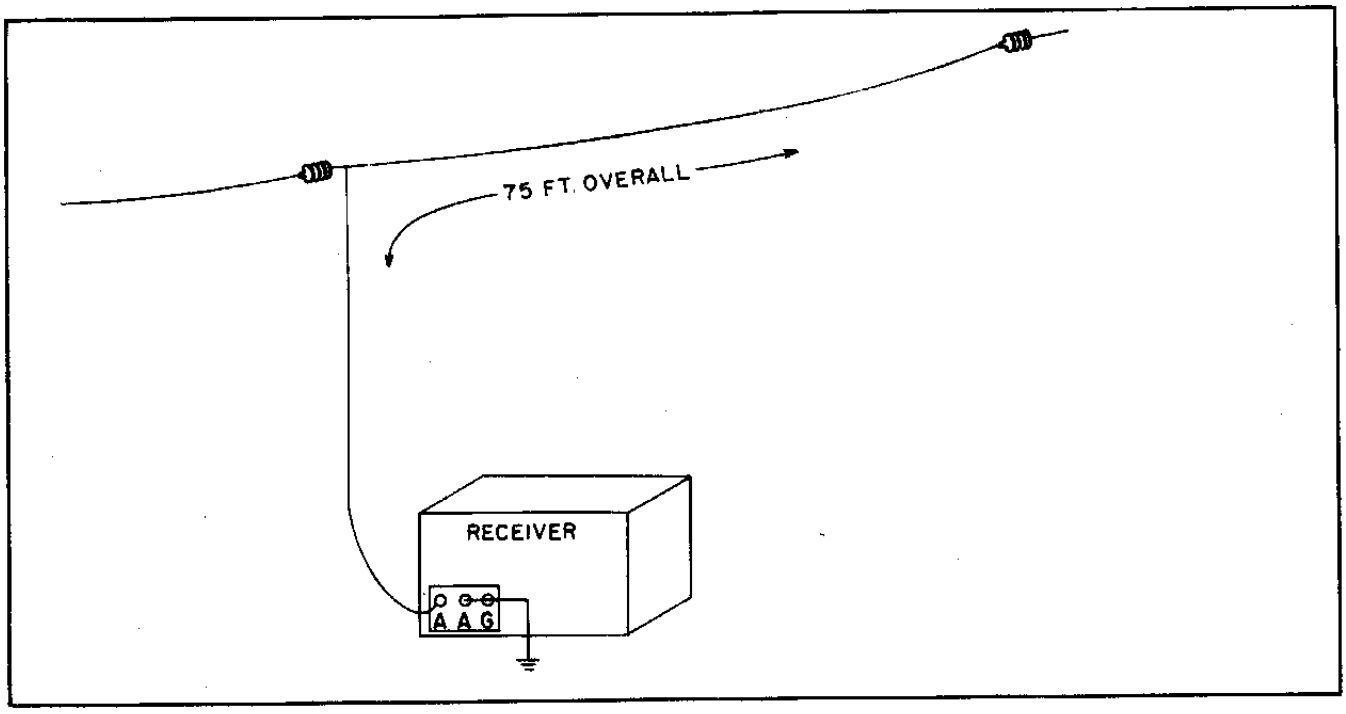


Figure 2. Installation of Single-wire Antenna

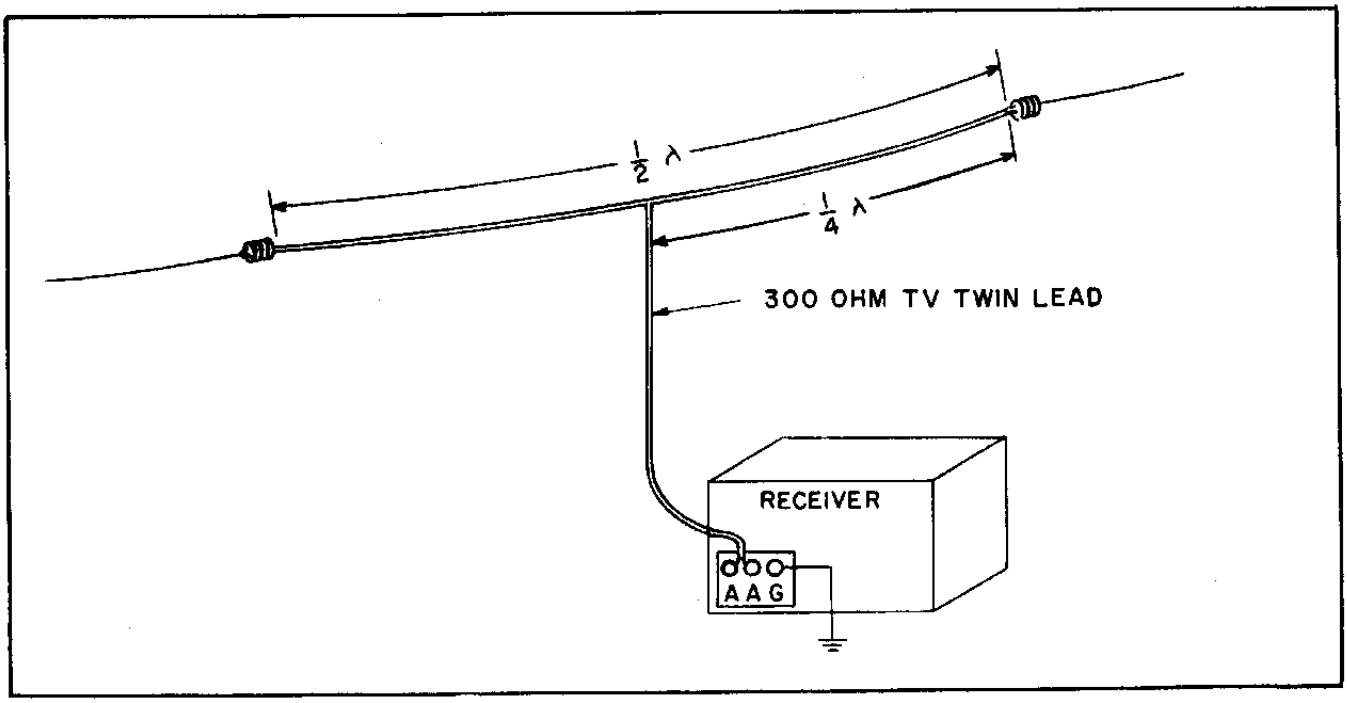
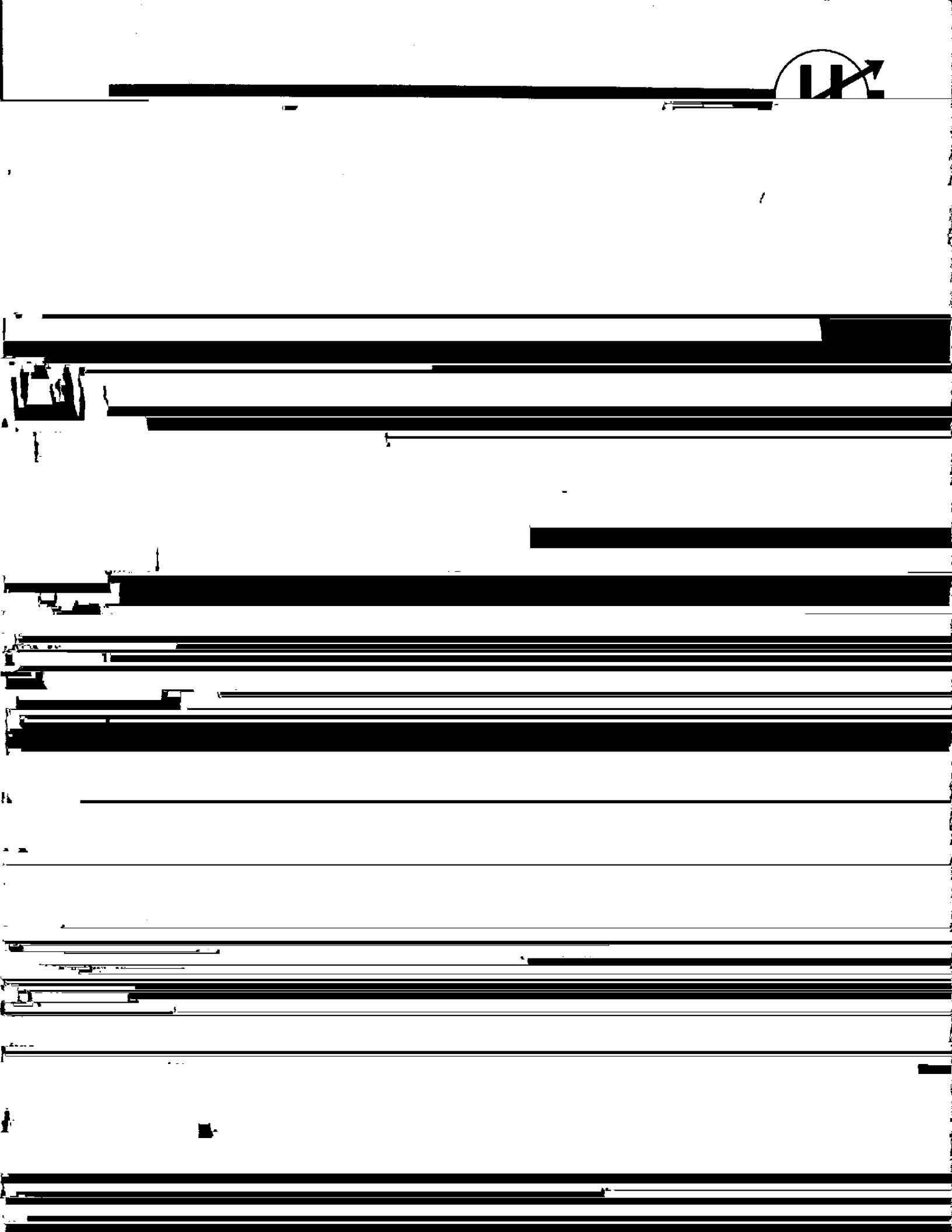


Figure 3. Installation of Folded Dipole Antenna

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OPERATION

Basically, all that is necessary to operate a radio receiver are the tuning and volume controls. The additional controls found on the front panel of a communications receiver such as the HQ-100, control functions which greatly improve operating performance and make possible reception of otherwise unintelligible signals.

NORMAL CONTROL SETTINGS

For "normal" operation such as broadcast, short wave listening, etc., the position of the various controls should be as follows:

Function Switch	Receive (REC.)
ANTENNA Trimmer	Tune for highest "S" meter reading on signal.
MAIN TUNING Control	Tune for highest "S" meter reading on signal.
SENSITIVITY Control	Fully clockwise
MAN.-AVC Switch	AVC
Band Selector (TUNING RANGE MCS) Switch	Set to desired frequency range.
Noise Limiter Switch	OFF
AUDIO GAIN Control	Adjust for proper level.
BAND SPREAD Control	Set counterclockwise to "100" on band spread dial.
SELECTIVITY Control	BFO position *
Frequency (FREQ.) Control	Set pointer to triangular marking.

* Setting the SELECTIVITY control to BFO with

SENSITIVITY Control	Adjust for desired output level.
MAN.-AVC Switch	Manual (MAN.)
Band Selector (TUNING RANGE MCS) Switch	Set to desired frequency range.
Noise Limiter Switch	OFF or ON as required by local noise conditions.
AUDIO GAIN Control	2/3 to 3/4 clockwise rotation.
SELECTIVITY Control	BFO position
Frequency (FREQ.) Control	Tune signal to zerobeat with pointer on triangle and then offset either left or right for desired pitch.

FUNCTION SWITCH

With the function switch in the Q MULT. position, three modes of operation are possible. CW or Single Side Band signals may be received with the SELECTIVITY control in the BFO position. With the SELECTIVITY control switched off the BFO position, AM signals, under conditions where additional selectivity is required, are received.

The broadest position of the SELECTIVITY control (corresponding to a 6 db bandpass of 3 KCS) is extreme counterclockwise. Rotating the control clockwise will continuously narrow the pass band until the Q-Multiplier goes into oscillation. In the oscillating condition, "single signal" reception of CW is possible.

SINGLE SIDE BAND OPERATION

dial and tuning in the signal with the MAIN TUNING control. Final peaking of the signal is then accomplished by adjustment of the BAND SPREAD control. It should be understood that the setting of the BAND SPREAD control will affect the Main Dial calibration in that a higher frequency setting of the main tuning dial will be required. Rotating the band spread dial from 100 toward 0 tunes the receiver to a lower frequency.

For Band Spread operation in the amateur bands, the following procedure must be followed: The main tuning dial is set to the line marking the high frequency (right-hand end) of a given amateur band. The Band Spread tuning and calibration may then be accomplished solely with the BAND SPREAD control and dial.

20BS SWITCH POSITION

A separate switch position is provided on the TUNING RANGE control for spreading the 20-meter band. This switches in another band spread capacitor for optimum spreading of this band.

TELECHRON AUTOMATIC TIMER

If your receiver is equipped with the built-in Telechron Automatic Clock-Timer, the following instructions should be noted:

Every radio-frequency device is stable only at predetermined operating temperatures. In order to eliminate waiting for receiver to warm-up to operating temperature, the Telechron Timer automatically turns on the receiver ahead of anticipated operating time. This is accomplished by setting the hand of the timer (small knob at rear of receiver) to approximately one-half hour before operating hour. The front panel control under Timer is then set to "Auto" position. The function switch is set to REC. The receiver is then automatically turned on at the desired time.

The clock hands are set by the rear knob. Push in on the knob to set the switch timing hand and pull out on the knob to set the clock hands. The front switch is set to AUTO and the operation switch is set to REC. when it is desired to use the automatic clock switch for pre-warming the receiver before operation or for use as an alarm to turn the receiver on to a pre-tuned station. To use the operation switch normally, the clock switch should be left in the ON position.

The clock will continue to run as long as the receiver line cord is connected to the power outlet, and is extremely useful for checking sign-in periods and schedules.

If your receiver is not equipped with the Telechron Automatic Clock-Timer, and you would care to have the accessory added, clock kits, with full installation instructions, may be had by writing the Hammarlund Mf. Co., 460 West 34th St., New York 1, N. Y. Order CLOCK KIT 38920-G1, or by contacting the nearest Hammarlund dealer.

POSSIBLE RECEIVER DIFFICULTIES

1. If, upon turning the function switch from "off" to "receive" position, the dials are not illumi-

distortion is preferable to excessive pulse type noise, such as ignition interference.

from zero beat will depend on whether upper or lower side band is being transmitted. If the beat frequency oscillator is on the wrong side of zero beat, it will be impossible to obtain intelligibility of the single side band signal when the band spread dial is tuned very slowly through the single side band signal. Should such a condition arise, merely rotate the FREQ. control from the one degree counterclockwise to the one degree clockwise position and then very carefully adjust the BAND SPREAD for intelligible speech. Here again experience is the best teacher. The stability of both the high frequency oscillator and the beat frequency oscillator employed in this receiver plus the excellent mechanical rigidity will provide excellent single side band reception. Refer to the above paragraph on the Q-Multiplier for improved single side band reception. For improved selectivity with BFO, the following procedure may prove advantageous. After a CW signal or single side band signal has been tuned in using the procedure previously given, if the SELECTIVITY control is very gradually rotated in the counterclockwise position, it will be found that the Q-Multiplier will continue to oscillate. Under these conditions, narrower band width with BFO injection will result.

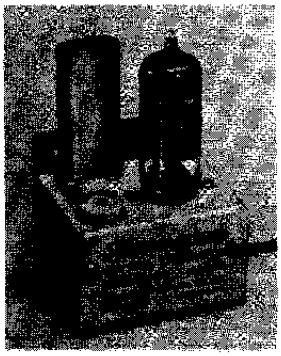
AUDIO AMPLIFIER

The first audio stage is a resistance coupled voltage amplifier employing the other section of the 12AX7 (V4B). The audio output stage is a 6AQ5 beam power amplifier (V8) providing an undistorted output level of at least one watt.

A feature of the audio system is the variable negative feedback employed (see Auto-Response Curve, Figure 6). Maximum feedback is provided at low settings of the AUDIO GAIN control for the fine quality reception of local broadcast and strong short wave stations. As the AUDIO GAIN control is increased, the feedback decreases so that on reception of weak signals additional selectivity is provided by the audio section. This results in an increased signal-to-noise ratio. A further advantage is the critical damping of the speaker for elimination of speaker "hangover". This upgrades the reception of speech and music and decreases the noise output of the receiver. A further advantage is the reduction of distortion at lower settings of the AUDIO GAIN control.

ACCESSORIES

Now you can get even more out of your HQ-100 receiver! With a few minutes and an investment of only $15.95 you can get such sparkling reception of single-signal CW you won't believe your ears--that is, till you try the new BFO kit now available from your Hammarlund distributor or directly from Hammarlund Manufacturing Co., Inc. Moss Hill, North Carolina.



The new XC-455 conversion kit is a 455 KCS crystal-controlled BFO designed to be added to the second detector of the HQ-100. With the kit added, the function of selectivity control of the built-in Q-multiplier is greatly enhanced. It permits single-signal CW reception with bandwidth adjustable from approximately 3 KCS to 100 cps.

The XC-455 conversion kit is mechanically identical to the XC-100 crystal calibrator kit and differs only to the extent of the frequency of the oscillator quartz crystal provided. The installation of both units is identical with the sole exception of the termination of the output lead as described in the installation bulletin. Only one of these units may be installed on the receiver chassis. If both are desired one must be used externally.

The kit is quickly and easily installed. It is complete with easy-to-follow instructions, operating switch and mounting hardware -- and it costs only $15.95.

The XC-100 Crystal Calibrators is available, providing checkpoints every 100 KCS within the range of the receiver.

This is not usually required by the average short wave listener, although it will prove an aid as a means of correcting for possible dial error.

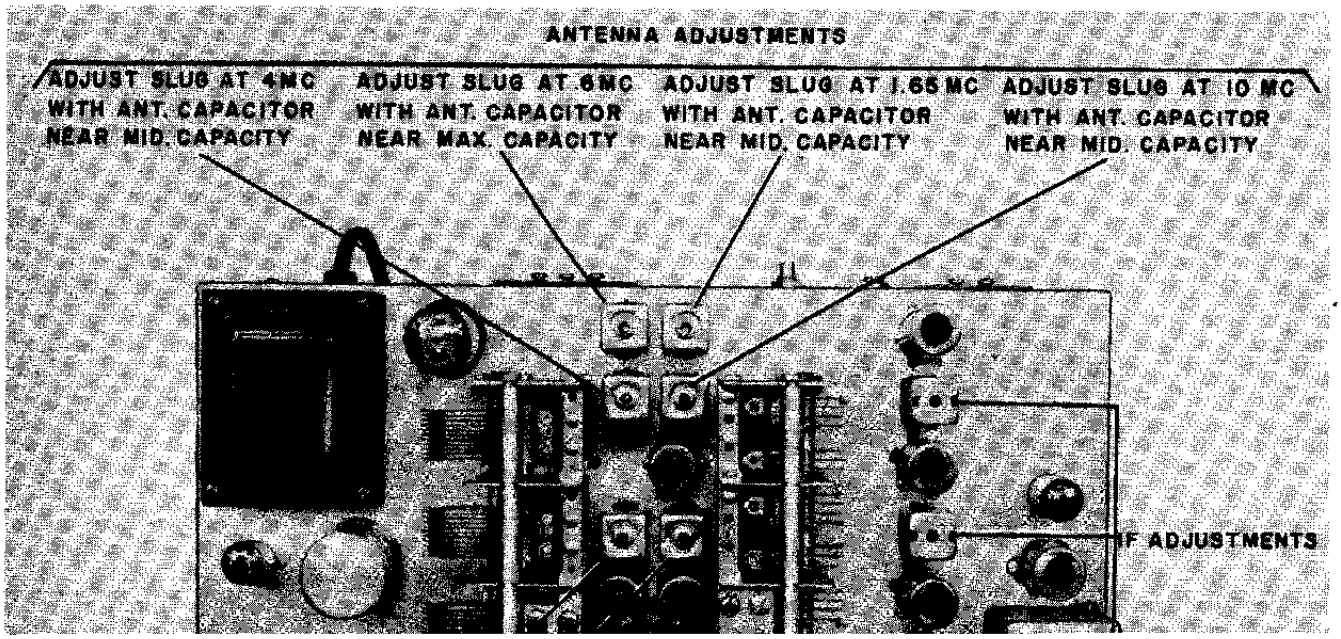
The amateur operator will find this of most value since the 100 KCS checkpoints this unit provides, will make it possible to accurately set amateur band edges. This will result in improving the accuracy of the amateur band spread dial, by determining the exact setting of the main tuning dial.

PL-38657-G5 -- $17.95

SERVICE AND REALIGNMENT PROCEDURE

NOTE

To service this receiver, disconnect from power source and remove all leadwires attached to terminal connections at rear of chassis apron. Carefully turn the receiver up onto the front panel face on a smooth clean surface. Remove the two #10 hex machine screws at the extreme ends of the chassis apron at the rear of the cabinet, and the knob from the clock adjustment shaft if receiver is so equipped. Lift cabinet straight up and off of chassis. To reassemble, use reverse procedure.



IF ALIGNMENT

NOTE

Use a non-metallic alignment tool such as Gen-

c. Set the receiver controls as follows:

BAND SPREAD dial on 100
Function switch on REC.
Main tuning dial on . 54 MC
Noise limiter switch on OFF

cuits; bottom of chassis adjustments (Figure 8) are primaries or plate circuits.

e. Turn the function switch to Q MULT. and adjust the SELECTIVITY control counterclockwise to a position below the oscillating point. With its panel bushing nut loosened to permit the frequency shaft to turn without hindrance by the stop, adjust the FREQ. control to obtain a maximum meter indication. The input signal must be adjusted to a value just sufficient to obtain a good meter swing. This adjustment is the center frequency of the pass band and is also the zero setting for the BFO. While the meter is at maximum, turn the stop lug to a position 180 degrees directly opposite the stop pin in the frequency shaft. Holding it in this position, tighten the bushing in the nut molding [illegible]

ment should be accomplished by combined or alternate adjustment of the oscillator and RF for maximum amplitude.

NOTE

The trimmer adjustments, if required, should be the final adjustment for each band. See Figure 8 for location of trimmers.

There is no RF amplifier adjustment for the .54 - 1.6 MC band.

f. Note that the oscillator frequency in the HQ-100 is always on the high side of the signal frequency by 455 MCS. Therefore, it is necessary to make sure that the oscillator frequency is not

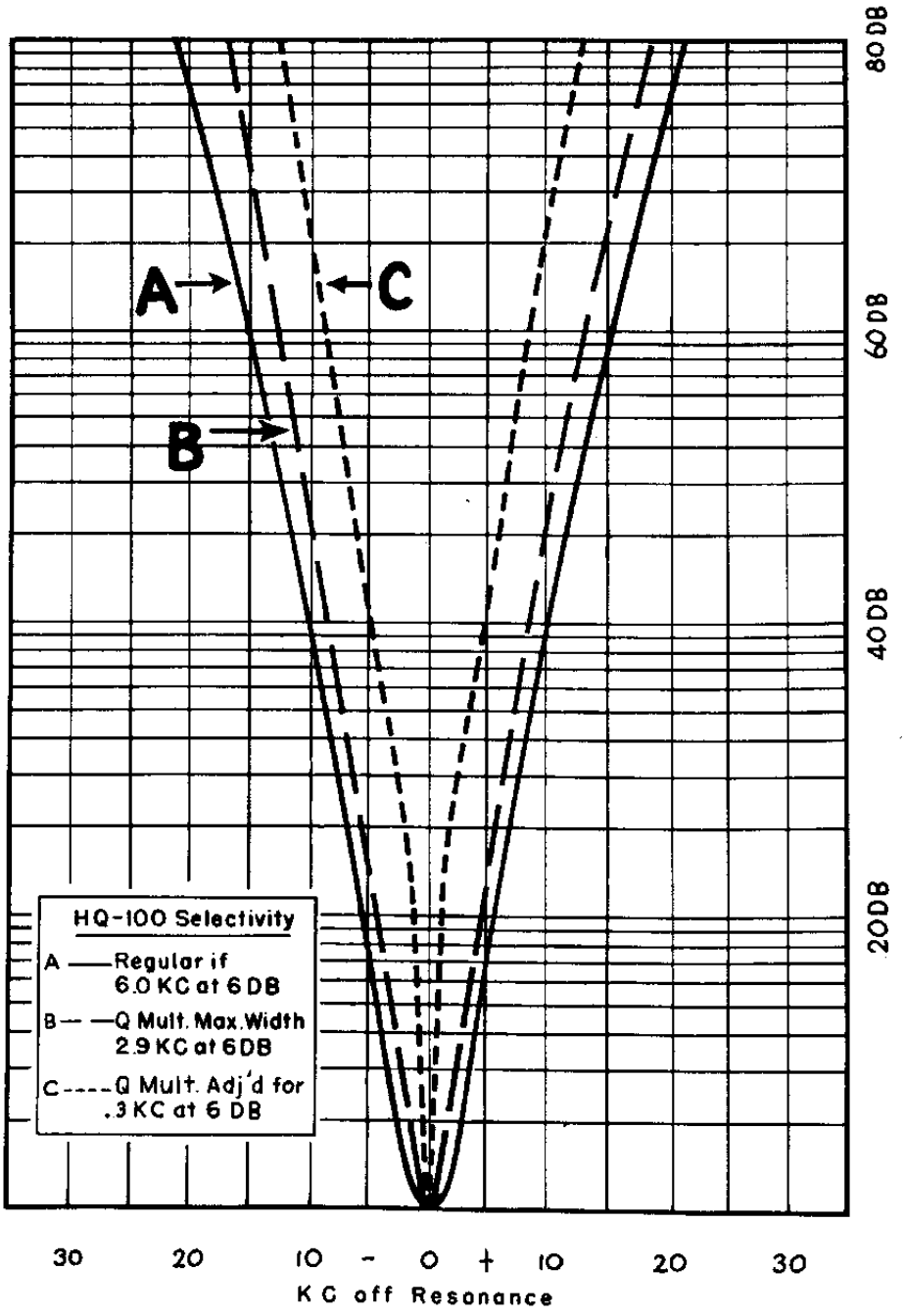


Figure 9. Selectivity Curves

TABLE 1. TUBE SOCKET VOLTAGES

Measured from tube socket pins to chassis with vacuum tube voltmeter. AUDIO GAIN control minimum. Band Selector switch on 10-30 MCS. Noise Limiter switch OFF. MAN. -AVC on MAN. SENSITIVITY control maximum except where noted. Function switch on Q MULT. except where noted. SELECTIVITY control counterclockwise. Line voltage 117. No signal input.

TUBE	SOCKET PIN NUMBERS								
	1	2	3	4	5	6	7	8	9
V1 RF 6BZ6	-	1.8		6.3 ac	245	105	-	-	-
V2 MIXER 6BE6	-1.3	1.3	-	6.3 ac	235	70	-	-	-
V3 HF OSC 6C4	100	-	-	6.3 ac	100	.7	-	-	-
V4 12AX7 Q MULT. 1st AF	230 0 ON REC.	-	2.7 0 ON REC.	6.3 ac	6.3 ac	76	-	.8	-
V5 1st IF 6BA6	-	-	-	6.3 ac	230	105	2.15 13.6 Min SENS	-	-
V6 2nd IF 6BA6	-	-	-	6.3 ac	230	95	2.4 13.6 Min SENS	-	-
V7 6AL5 DET. LIM. AVC	-.2	-.3	-	6.3 ac	-	-	-.2	-	-
V8 6AQ5 AUDIO OUTPUT	-	15	-	6.3 ac	260	240	-	-	-
V9 0B2 VOLTAGE REG.	105	-	-	-	105	-	-	-	-
V10 5Y3 RECTIFIER	-	270	-	250 ac	-	250 ac	-	270	-

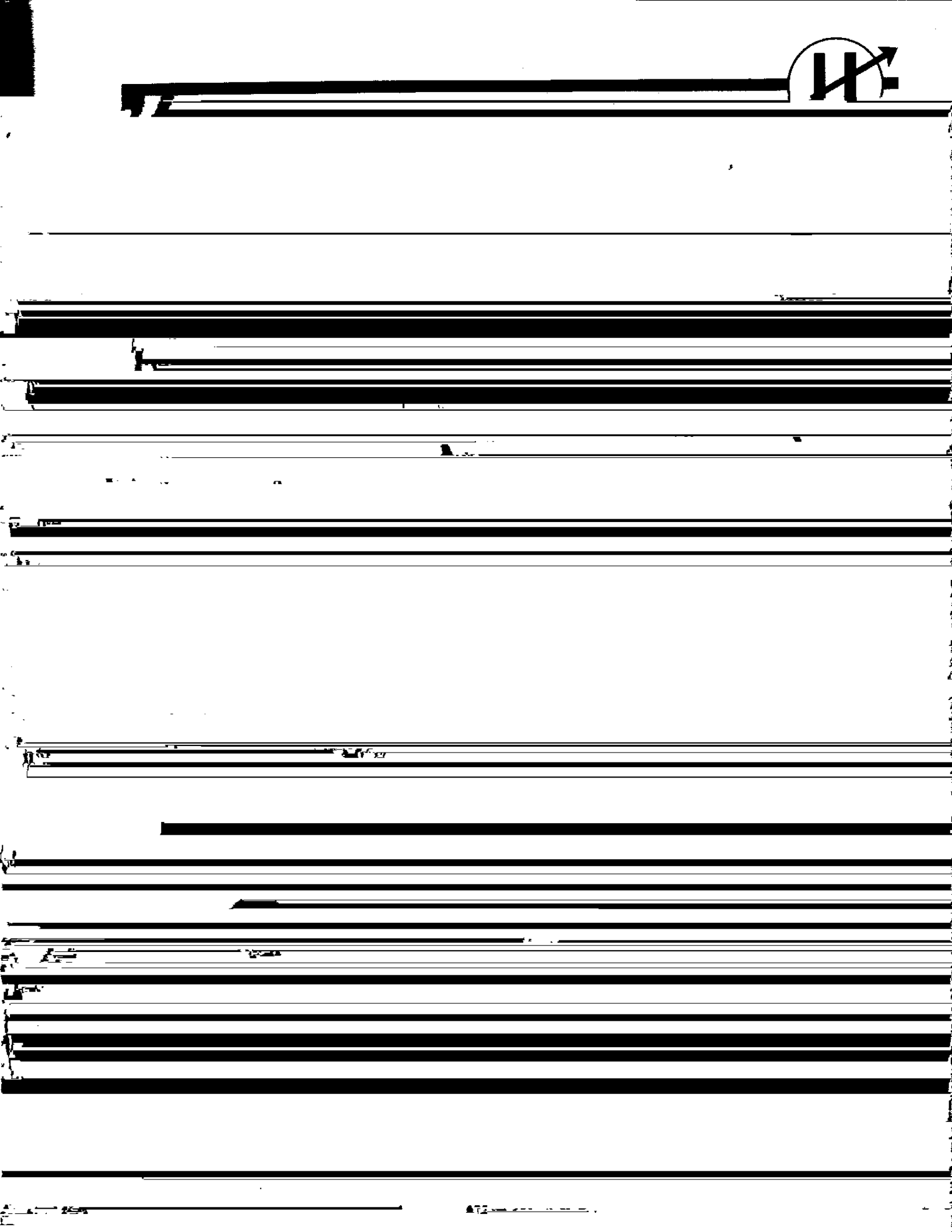
TABLE 2. TUBE SOCKET RESISTANCES

Measured from tube socket pins to chassis with vacuum tube ohmmeter. AUDIO GAIN control maximum. SELECTIVITY control on BFO. Noise Limiter switch ON. SENSITIVITY control maximum except where noted. MAN.-AVC on MAN. Function switch on Q MULT. Band Selector switch on 10-30 MCS.

TUBE	SOCKET PIN NUMBERS								
	1	2	3	4	5	6	7	8	9
V1 RF 6BZ6	10K 2.4 Meg on AVC	180	0	0	.5 Meg or more	.5 Meg or more	0	-	0
V2 MIXER 6BE6	22K	180	0	0	.5 Meg or more	.5 Meg or more	0	-	-
V3 HF OSC 6C4	.5 Meg or more	INF	0	0	.5 Meg or more	47K	0	-	-
V4 12AX7 Q MULT. 1st AF	.5 Meg or more	2.2 Meg	6800 18K Min Sel.	0	0	.5 Meg or more	1 Meg	2200	0
V5 1st IF 6BA6	0 2.4 Meg on AVC	0	0	0	.5 Meg or more	.5 Meg or more	180 10.2K Min Sel.	-	-
V6 2nd IF 6BA6	470K	0	0	0	.5 Meg or more	.5 Meg or more	200 10.2K Min Sel.	-	-
V7 6AL5 DET. LIM. AVC	2.1 Meg	190K	0	0	.5 Meg or more	.5 Meg or more	120K	-	-
V8 6AQ5 AUDIO OUTPUT	.5 Meg	430	0	0	.5 Meg or more	.5 Meg or more	.5 Meg or more	-	-
V9 0B2 VOLTAGE REG.	.5 Meg or more	0	INF	0	.5 Meg or more	INF	0	-	-
V10 5Y3 RECTIFIER	-	.5 Meg or more	-	85	-	90	-	.5 Meg or more	-

PARTS LIST

Schematic Designation	Description	Hammarlund Part No.
	RESISTORS	
R1	22 Ohms, 1/2 W	K19309-9
R2	Potentiometer, 10,000 Ohms	K26218-2
R3	10,000 Ohms, 1/2 W	K19309-73
R4	1,000 Ohms, 1/2 W	K19309-49
R5	22,000 Ohms, 1/2 W	K19309-81
R6	180 Ohms, 1/2 W	K19309-31
R8	6,200 Ohms, 1/2 W	K19309-176
R9	47,000 Ohms, 1/2 W	K19309-89
R10	1,000 Ohms, 1/2 W	K19309-49
R11	2.2 Megohms, 1/2 W	K19309-129
R12	6,800 Ohms, 1/2 W	K19309-69
R13	Potentiometer, 10,000 Ohms	K15378-1
R14	2,200 Ohms, 1/2 W	K19309-57
R15	Potentiometer, 200 Ohms	K15368-6
R16	2,200 Ohms, 1/2 W	K19309-57
R17	1,600 Ohms, 1/2 W 5%	K19309-210
R19	180 Ohms, 1/2 W 5%	K19309-260
R20	5,000 Ohms, 10 W	K19337-4
R21	2,200 Ohms, 1/2 W	K19309-57
R27	Potentiometer, 1 Meg	K26218-3
R28	47 Ohms, 1/2 W	K19309-17
R29	2,200 Ohms, 1/2 W	K19309-57
R30	100 Ohms, 1/2 W	K19309-25
R31	430 Ohms, 1 W	K19310-212
R32	22 Ohms, 1/2 W	K19309-9
R33	180 Ohms, 1/2 W	K19309-31
R34	47,000 Ohms, 1/2 W	K19309-89
R35	2,200 Ohms, 1/2 W	K19309-57
R36	10 Ohms, 1/2 W	K19309-1
R37	470K Ohms 1/2 W	K19309-113
J1	'Phone jack	K35608-1
CMC	Clock, Telechron, Auto-timer	K38874-1
	CAPACITORS	
C1, A-C	Variable, Main tuning	P38834-1
C2, A-F	Variable, Band spread	P38335-1
C3	Variable, Antenna compensator	34454-G11
C4, 5, 6, 7, 8, 9, 10, 15	Fixed, Ceramic disc, .01mf 600 W. V. D. C.	M23034-14
C11, 12, 13, 15	Trimmer 1-8 MMF 500 W. V. D. C.	K23008-1
C16, 17, 18	Fixed, Silver mica, .001 mf 500 W. V. D. C.	K23006-1
C19	Fixed, Ceramic disc, .01 mf 600 W. V. D. C.	M23034-14
C20, 21, 22, 23	Variable, 1-8 mmf 500 W. V. D. C.	K23008-1
C24	Fixed, Silver mica, 430 mmf 300 W. V. D. C.	K23071-317
C25	Fixed, Silver mica, 1300 mmf 500 W. V. D. C.	K23072-60
C26	Fixed, Silver mica, 3000 mmf 500 W. V. D. C.	K23072-7
C27	Fixed, Silver mica, 1100 mmf 500 W. V. D. C.	K23011-59
C28	Fixed, Silver mica, 3300 mmf 500 W. V. D. C.	



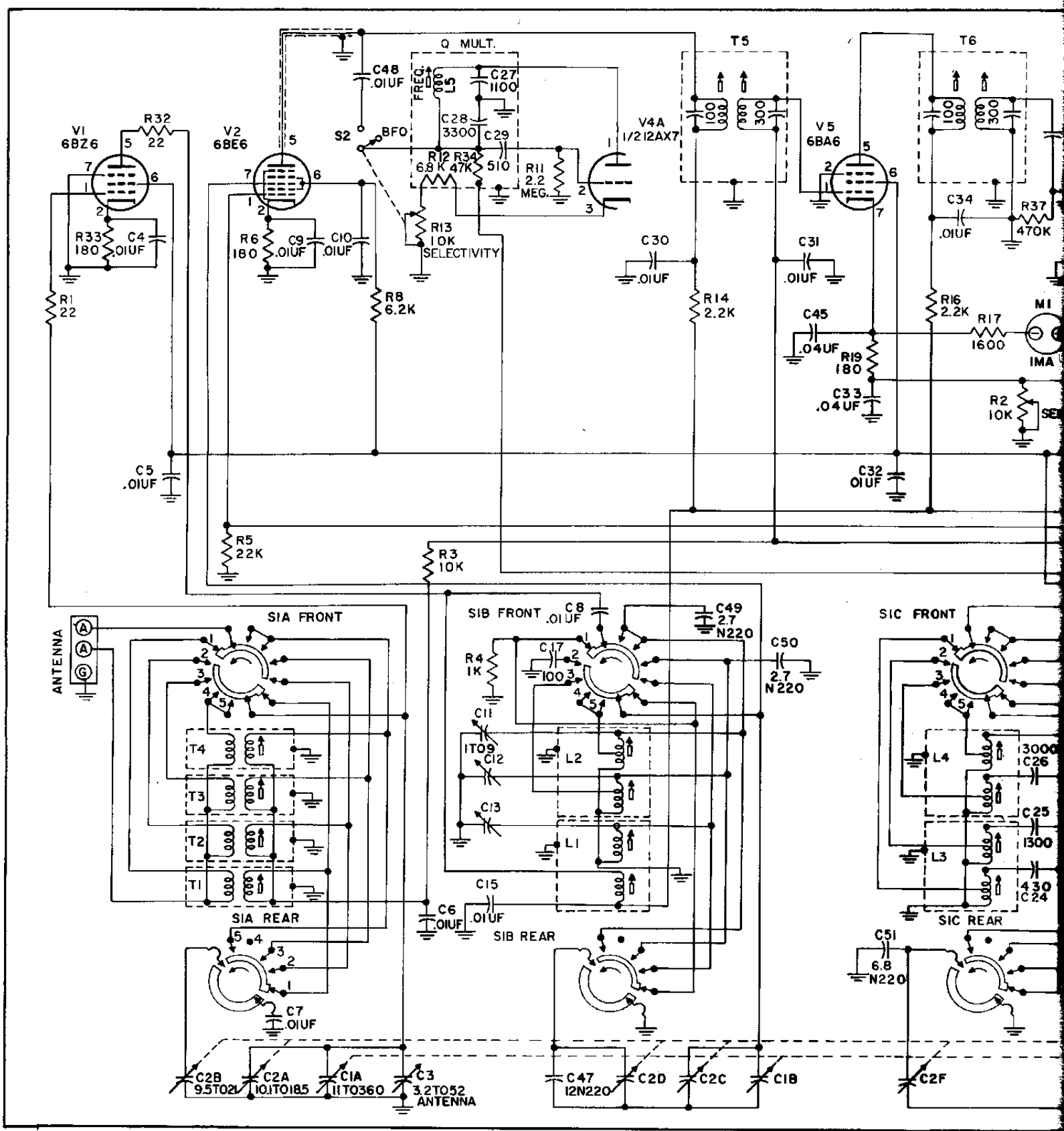
ADDITIONAL HINTS FOR THE NOVICE AND SHORT WAVE LISTENER

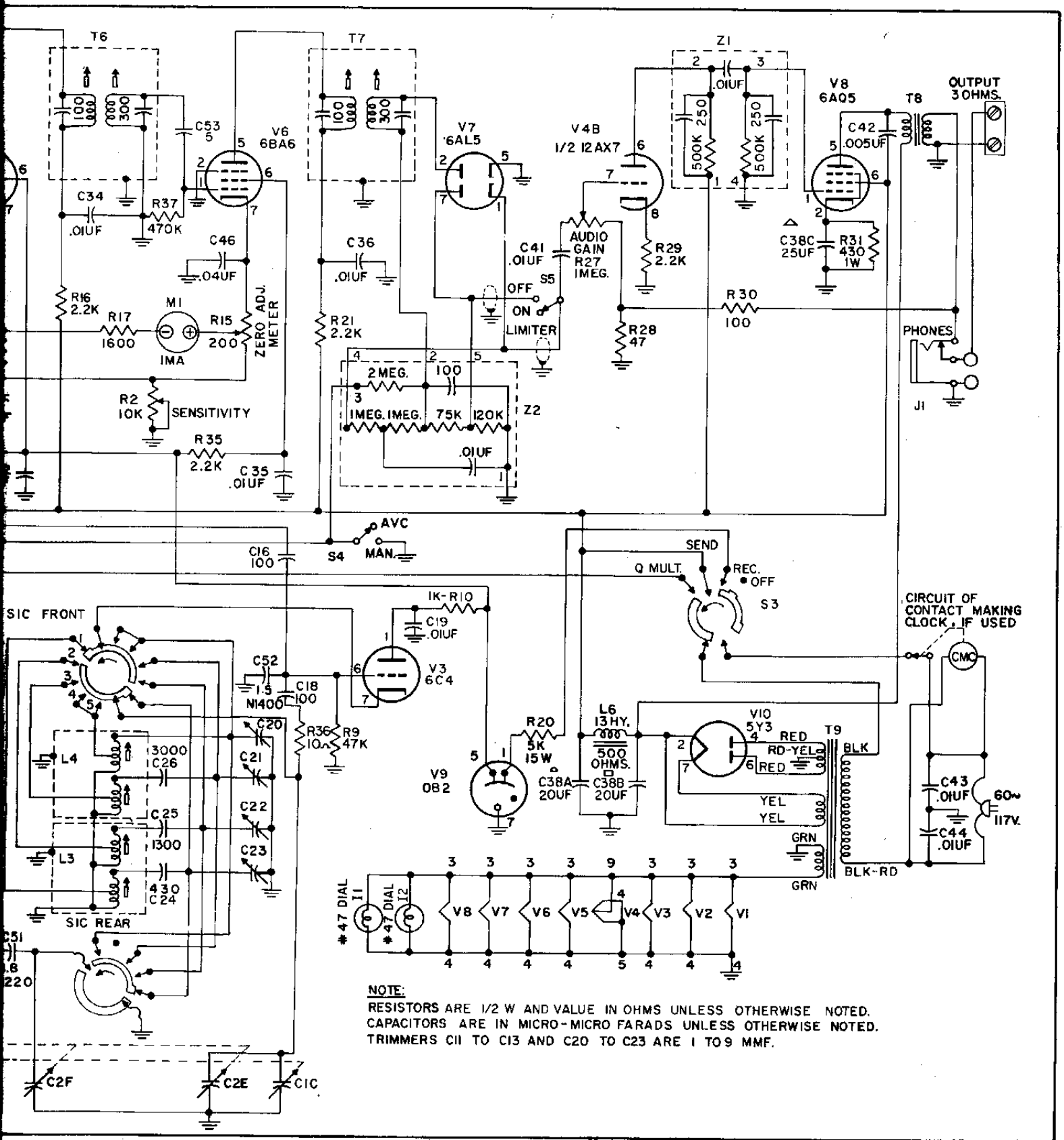
A voltage reading of 45 - 50 volts may be obtained between the chassis and a ground as the result of the two power line by-pass condensers that are connected across the power line with the center tap grounded. Since we are dealing with AC, these capacitors will look like resistors to a volt meter. This will also produce a slight shock if the chassis is not grounded, and one happens to contact a grounded object, and the chassis or any exposed part of the receiver. This also will account for a slight spark, if the receiver is connected to the power line and the ground connection is made. For protection a good ground should always be employed.

In using the receiver for CW, or in other words, with the BFO or the Q multiplier in the oscillating state, it is absolutely necessary to take the receiver out of the AVC position and put it into the Manual position. Failure to do this will result in the receiver blocking and erratic action of the S meter. The S meter is only usable in the AVC position. When using BFO or Q multiplier in oscillating state, the audio control should be used at 2/3 to 3/4 rotation clockwise position and the RF sensitivity control employed as a means of adjusting volume.

When employing the Q multiplier for phone use the function switch will, of course, be in the Q multiplier position and it is advisable to start with the Q multiplier selectivity control in the complete counter clock wise position. If this control is advanced past approximately the 2 o'clock position, the Q multiplier may go into oscillation resulting in the blocking of the receiver. For use on phone the Q multiplier selectivity control, will also usually be employed between maximum counter clock wise position and approximately straight up. Beyond this point or even at approximately the straight up position the receiver is usually so selective that it is capable of wiping the modulation off the carrier by actually rejecting the side bands. For normal phone use or broadcast reception the selectivity control should always be employed in the BFO or clock wise position, since this results in the operation of a switch which disconnects the Q multiplier from the IF system and makes it ready to act as a BFO when the function switch is turned to the Q multiplier position. In other words, if it is desirable to use the BFO to locate a station when tuning for weak signals, after the phone carrier is tuned in, merely rotate the function switch from the Q multiplier position to the Receive position which will result in turning off the BFO for phone reception. If interference is experienced either between stations close to one another, or an interfering CW signal, first turn the Q multiplier selectivity control completely counter clock wise, then the function switch to the Q multiplier position. Gradually advance the Q multiplier selectivity control which will result in increasing the selectivity by producing a spike or narrow band width that is adjustable from approximately 3 kc to 100 cycles in width. This spike can be moved around within the IF pass band that is nominally approximately 6 kc wide. The frequency control is the means for varying the position of this spike. Assuming that the selectivity control is adjusted to produce a spike 1 kc wide and also assuming that the band width of the IF system is 6 kc wide, it can be appreciated that the shape of the IF system response curve can be varied by moving the 1 kc band width anywhere within the 6 kc band width. This will produce a valley on either side of the spike or peak. By proper tuning, therefore, of the band spread dial and the frequency control of the Q multiplier, it should be apparent that an interfering signal may be placed in a valley and the desired signal on the peak, with the net result of decreasing the strength or eliminating the signal that is in the valley, without seriously affecting the desired signal intelligibility.

Since the use of the Q multiplier naturally means narrower band width, it should only be employed when interference is present. Never use the Q multiplier on the broadcast band unless you are hunting weak DX signals and are therefore not after maximum fidelity response. The same, more or less, applies to short wave broadcast listening. Here the use of the Q multiplier in addition to functioning as previously described may also prove advantageous from a noise reduction standpoint as a direct result of the decreased band width.


Q MULT.
T5
T6
V1
6BZ6
V2
6BE6
V4A
1/2 12AX7
V5
6BA6
S2
BFO
FREQ.
C48
.01UF
C27
1100
C28
3300
C29
510
R12
6.8K
R34
47K
R11
2.2
MEG.
R13
10K
SELECTIVITY
R32
22
R33
180
C4
.01UF
R6
180
C9
.01UF
C10
.01UF
R8
6.2K
R1
22
C5
.01UF
R5
22K
R3
10K
C30
.01UF
R14
2.2K
C31
.01UF
C34
.01UF
R37
470K
R16
2.2K
C45
.04UF
R19
180
C33
.04UF
R17
1600
M1
IMA
R2
10K
C32
01UF
ANTENNA
SIA FRONT
SIA REAR
SIB FRONT
SIB REAR
SIC FRONT
SIC REAR
C8
.01UF
C49
2.7
N220
C50
2.7
N220
C17
100
R4
1K
C11
C12
C13
L2
L1
C15
C6
.01UF
C7
.01UF
T4
T3
T2
T1
L4
L3
3000
C26
C25
1300
430
C24
C51
6.8
N220
C2B
9.5TO21
C2A
10.1TO185
C1A
11TO360
C3
3.2TO52
ANTENNA
C47
12N220
C2D
C2C
C1B
C2F



NOTE:
RESISTORS ARE 1/2 W AND VALUE IN OHMS UNLESS OTHERWISE NOTED.
CAPACITORS ARE IN MICRO-MICRO FARADS UNLESS OTHERWISE NOTED.
TRIMMERS C11 TO C13 AND C20 TO C23 ARE 1 TO 9 MMF.

Figure 10. Hammarlund HQ-100 Receiver, Schematic Diagram

HQ-100A Addenda

Due to the minor changes in the circuit and operation of the HQ-100 series receiver, we have postponed the printing of the HQ-100A manual. We feel this addenda, with the HQ-100 manual, is straight forward as to the receiver's operation. This addenda follows;

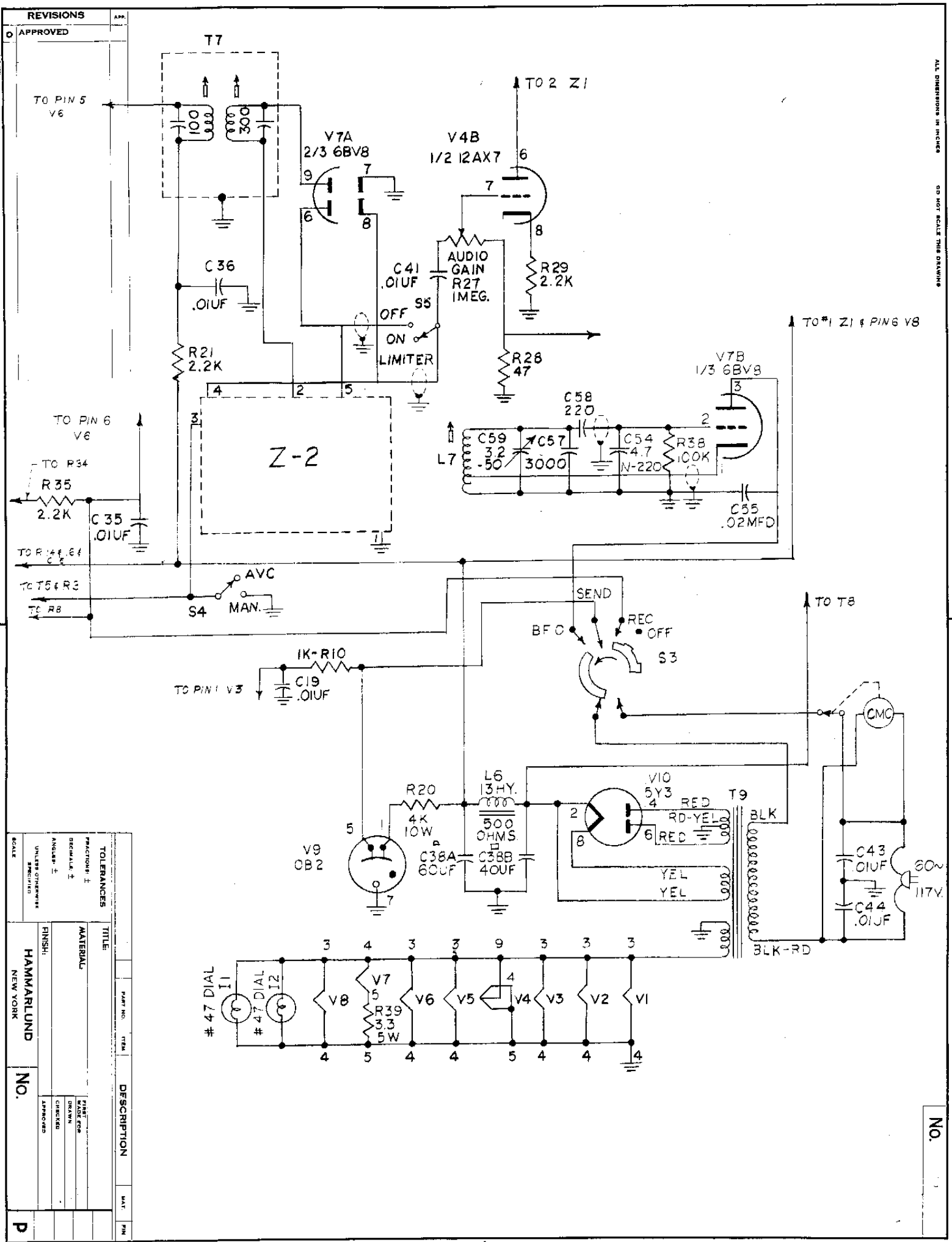
The HQ-100A differs from the HQ-100 only in that it incorporates a separate built-in B.F.O. rather than using the Q-multiplier in the self-oscillating state as was previously done. This therefore, allows independent control of both the B.F.O. and Q-multiplier circuits for improved operation on CW and single sideband.

Referring to the manual supplied, fig.5 "Location of Control", the following changes should be realized.

The positions of the function switch (#2) are now, OFF-REC-SEND-BFO. In order to activate the B.F.O. for CW or single sideband reception, this function switch should be placed on B.F.O.

Located between the main and bandspread tuning dial scales (14 and 15) is the new B.F.O. pitch control. With the function switch on B.F.O., as outlined in the above paragraph, this B.F.O. pitch control can be adjusted to produce the desired tone on CW signals, or as a vernier tuning adjustment for single sideband.

The selectivity control #11 has been altered. At the extreme counterclockwise position of this control, the Q-multiplier is turned "off". For normal operation of the receiver on the broadcast band or short wave bands, the Q-multiplier should be in this off position. If interference is experienced from a co-channel signal.


REVISIONS
APPROVED
T7
TO PIN 5 V6
100
300
V7A 2/3 6BV8
V4B 1/2 12AX7
TO 2 Z1
AUDIO GAIN R27 1MEG.
C41 .01UF
R29 2.2K
C36 .01UF
OFF
S5
ON
LIMITER
R21 2.2K
R26 47
TO #1 Z1 & PIN 6 V8
V7B 1/3 6BV8
C58 220
C59 3.2-50
C57 3000
C54 4.7 N-220
R38 100K
L7
C55 .02MFD
TO PIN 6 V6
Z-2
TO R34
R35 2.2K
C35 .01UF
TO R14 & C4
TO T5 & R3
TO R8
AVC
MAN.
S4
SEND
REC
OFF
BFO
S3
TO T8
1K-R10
TO PIN 1 V3
C19 .01UF
CMC
R20 4K 10W
L6 13HY. 500 OHMS
V10 5Y3
T9
RED
RD-YEL
RED
BLK
V9 OB2
C38A 60UF
C38B 40UF
YEL
YEL
C43 .01UF
60~
117V.
C44 .01UF
BLK-RD
#47 DIAL I1
#47 DIAL I2
V8
V7
R39 33 5W
V6
V5
V4
V3
V2
V1
TOLERANCES
FRACTIONS ±
DECIMALS ±
ANGLES ±
UNLESS OTHERWISE SPECIFIED
SCALE
TITLE
MATERIAL
FINISH
HAMMARLUND
NEW YORK
DESCRIPTION
DRAWN
CHECKED
APPROVED
ALL DIMENSIONS IN INCHES
DO NOT SCALE THIS DRAWING